

Ericsson: From Staged CMM to Continuous CMMI (and back), by Ben Linders

Ericsson EuroLab Netherlands is a company within Ericsson, the world's leading supplier in telecommunications. They have facilities in the south (Rijen) and in the east (Enschede, and Emmen). In total about 1100 persons are working for this company, almost all are directly involved in software development. The scope of this article is about the design unit in Rijen, and in particular about the Charging Competence Centre department. This department employs about 160 persons, developing charging systems for telephone exchanges. The technology is based on UNIX and NT based systems, using UML based Object Oriented development with C++ and JAVA, deploying most Rational tools

This paper explains how the application of the CMM (I) model has changed over the years, from a model initially used to rate the organisation, to a model used to improve reaching the organisations goals.

1. The Early Years: CMM as a Rating Model.

Ericsson was one of the early adopters of the CMM model. The process focus, and the concept of measurement based improvement where the unique selling points which made Ericsson chose for the model. The first assessment, back in 1994, showed Ericsson Rijen was on level 1, which was no surprise. However it revealed also that there were things in place which belonged to level 3, which was promising and gave strength to move to a higher maturity level.

An improvement program was executed to get to level 2. For each process area process responsables were assigned, who defined the process, and rolled it out into the organisation. Every project was assessed on each of the level 2 process areas, color flags were used to indicate the status of the process area in the project. If the flag was red, the project manager had to come up with a plan to turn the flag green.

In parallel to that, a process support organisation was established and basic measurements were defined and introduced to the projects. Figures measured from the projects were shown in monthly operational meetings, and used to define actions where the performance was insufficient.

A next assessment in 1995 showed that the Research and Development Unit of Ericsson Rijen was on level 3, the first company of Ericsson worldwide. This was a big reward for all those years of improvement programs; they had finally reached their goal! As a result, the focus in the organisation changed, and operational goals like meeting deadlines combined with many vacancies demanded their toll. Projects became less focussed on processes and measurements. Since the process support organisation remained, as did the culture to improve in some of the departments, the projects still managed to live up to the expectations. But things didn't always go that smoothly...

One department in Ericsson Rijen, the Charging Competence Centre, kept on believing in the CMM and its usefulness. They started their own program to come to level 4, by defining measurements and applying them in their projects. In June 1998, they did their first preparations towards a new assessment. Bill Curtis, associated with the Software Engineering Institute, stated that the Unix development department could be "among the world elite in one year". Finally, the department has been re-assessed in November 1998, where it was found to be a professional "solid as a rock" level 3 organization, with parts of level 4 institutionalised.

2. To Rate or to Improve, that is the Question?

Having worked for quite some years on process improvements, and not getting the reward of being at level 4, came somewhat as a disappointment to this department. And it also confused them, as they didn't just implement the practices of the CMM model. They had worked from the goals and concepts of the model, and implemented it in such a way that it made sense to do it. Though they didn't exclude process areas, they did not implement all practices and came up with alternatives for some of them. But most of all they were confused because in their opinion the improvement programs had delivered results, being an organisation able to perform projects within control limits (so reaching the goals), and capable of improving where business goals required it.

As a next step, they didn't start a new improvement program to fill the goals found in

the assessment. Instead, they continued their approach focussing on business goals and selecting improvements which contribute to that, regardless of CMM levels involved. This focus on CMM matched perfectly with operational goals set by the department, in the sense that CMM contributed directly to the business.

3. Business Focussed Application of CMMI

In line with the new improvement strategy, the assessment approach is changed also. It is no longer considered useful to assess the whole department against a certain level. Instead, assessment include only those process areas relevant for the business.

When the draft versions of the CMMI become available, a first set of assessments is done using the approach of the CMMI continuous model, and the process descriptions of the CMM Software V2.0 draft C model. In the first quarter of 2000 3 assessments are done, one for process management, one for project management, and one for engineering. They include process areas of all levels. The findings are not presented in a level way, but per group of processes, and the focus is upon filtering out those findings considered essential within the business scope of the department. This new approach of assessments turns out to be a success, and brings new energy into assessment based improvements.

There is another difference in how improvements are done within the organisation. Instead of defining improvement teams, findings are fed into existing groups within the organisation.

These groups have a double responsibility: They have to make sure that projects reach their goals, and also that they improve the way that they reach the goals. These groups exist both for project management (including all project managers), and process management (including quality, process and tool support engineers). These groups analyse the findings, and define improvements within the goals set for them. Findings not endangering the goals get a lower priority, and no actions are defined for them.

In August the CMMI model is finally released. Ericsson decides to move towards the CMMI continuous model. Based on that, pilot assessments are defined for all assessment classes within Ericsson. The Charging Competence Centre decides to do a pilot of CMMI class C (light) assessments. After discussing and analysing the business goals and performance, 4 assessments are defined. Each one has its own focus, process areas, and groups within the organisation that will be assessed. For instance, there is one assessment focussing on the project office, including mainly project management process areas but also including organisational training and some support process areas considered vital for project management. Another assessment includes only one process area and group: Decision analyses and resolution in the management team of the department. Though very different assessments, each of them has goals, a target group, and a customer picking up the findings at the end to start improvements. The orderer for all assessments is the management team.

The pilot assessments are defined and prepared within 4 weeks, and the execution from kick off to final presentation (including Excel based questionnaires and consensus meetings) takes another 4 weeks. Due to the focus of these assignments, the findings resulting from them are picked up quickly, and improvements are started within a week after the official results of the assessment are available. Almost all findings lead to actions; this is where the assessment approach pays off. For the first time the organisation is not overwhelmed with a huge load of findings, instead there are comprehensive business related findings.

Based on the results, an assessment plan is made for 2001. The draft plan defines 6 business-focussed assessments, to be done throughout the year. Business goals will define the assessment scope, process areas, and groups involved. Results will be fed into the existing organisation, to give them the means to improve.

4. And back...

So everything is ok now, finally the match between business goals and CMMI assessments is made? Well, not completely. Next to the assessments focussing on improvements, there is also a need for a rating assessment.

Being an international company, Ericsson has quite some research and development centres around the world. For Ericsson it is vital that these centres deliver towards the corporate goals. In order to make decisions which developments will be allocated in which R&D centre, the

centres are benchmarked against each other. Main benchmarking criteria are operational goals, but also areas like competence management and process management. It is expected that some of these criteria will be measurable based on the CMMI model. This requires however that the model is used to rate, instead of to find improvements.

So what's next? The Charging Competence Centre will use CMMI class C assessments to measurably improve the organisation. These assessments will be run mostly by people from the own department. Next to that, assessment focussing on rating will be executed. This assessment will require a team mostly consisting of persons external to the department, in order to get an objective result. The combination will assure that the department keeps on reaching the increasingly more challenging goals, and that it will be considered a prime R&D centre within Ericsson that has a good and long lasting future within Ericsson worldwide!

5. About the author

Ben Linders has been working in process improvement using CMM based models from 1992 onwards. At Philips he participated in CMM improvement programs for Industrial Electronics, and for Audio. At Ericsson he was a member of the improvement team that worked for the CMM level 3 assessment in 1995, and the level 4 assessment in 1998. Currently he is working on the CMMI and Performance Management programs with Ericsson EuroLab Netherlands. He is a member of several (national

and international) CMM and SPI based improvement networks. He can be reached by email: Ben.Linders@eln.ericsson.se.